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believe that there is no physical cause in action by which the subject has an inkling of the drawings he is to make, or an indication whether he is going right or wrong. This incredulous tendency will be greatly strengthened if the assistance of spiritualistic performers is called in.

S. NEWCOMB.

RADIANT MATTER IN AN EDISON LAMP.

In the Edison exhibit at the Electrical exhibition was shown a phenomenon that deserves careful investigation at the hands of physicists. Midway between the two wires which carry the current to the carbon filament of an ordinary incandescent lamp, a third wire is inserted, which terminates in a thin strip of platinum extending up midway between the branches of the loop with its faces turned towards them, and ending about half an inch below the crown of the loop. When the lamp was in action at its ordinary state of incandescence, if a circuit was closed through a galvanometer between the insulated terminal of the platinum strip and either terminal of the carbon filament, it showed a current flowing across the vacuum of the lamp, between the platinum and the carbon, in opposite directions, according to which pole of the carbon was connected, but much stronger — forty times stronger — when the platinum was connected to the positive pole of the incandescent carbon; this through a galvanometer of about twenty ohms resistance. Moreover, this current was increased when the current through the lamp was increased, so as to heat it much beyond its normal temperature.

After the lamp has been in use for some time, the stronger, positive-platinum, current becomes weaker, and finally changes direction. By letting the lamp rest, the experiment may be repeated. The same currents were obtained *through the glass* when either terminal of the carbon was joined to a small piece of platinum stuck anywhere on the *outside* of the lamp; the same effects were also obtained when the bulb was drawn out into a long tube and the connection made at its end, and when this tube was packed in ice to cool it down; but when the tube was bent round into a loop, no current was obtained, probably from the cutting-off of rectilinear radiation from the carbon.

It would seem as if here were a field for extending Crookes's experiments on radiation.

H. M. PAUL.

THE AMERICAN ORNITHOLOGISTS' UNION.

THE second congress of the American ornithologists' union was held in the American museum of natural history in New York, Sept. 30 and two following days. Dr. Philip Lutley Sclater, Mr. Howard Saunders, and the Rev. E. P. Knubley, of the British ornithologists' union, were present, and took part in the proceedings. A large number of new members were elected.

The report of the committee on the revision of the nomenclature and classification of North-American birds was presented by Dr. Elliott Coues. The work of the committee had been divided; Messrs. Ridgway, Brewster, and Henshaw being charged with determining the status of species and sub-species, while Mr. Allen and Dr. Coues were to formulate the canons of nomenclature and classification. Dr. Coues read at length the report of this last sub-committee, the reading occupying about an hour and a half, after which Mr. Ridgway presented the report of the other sub-committee, which emphatically and unanimously indorsed the employment of trinomials for the designation of sub-species.

The report of the committee on bird-migration was presented by Dr. C. Hart Merriam. This committee had been very industrious, and had been greatly helped by the public press; so that, by the distribution of nearly six thousand circulars, the committee finally secured nearly seven hundred observers, in addition to the keepers of lights. The observers are distributed as follows: Mississippi valley district (Prof. W. W. Cooke, superintendent), 170; New-England district (John H. Sage, superintendent), 142; Atlantic district (Dr. A. K. Fisher, superintendent), 121; Middle-eastern district (Dr. J. M. Wheaton, superintendent), 90; Quebec and the maritime provinces (Montague Chamberlain, superintendent), 56; district of Ontario (Thomas McLlwraith, superintendent), 38; Pacific district (L. Belding, superintendent), 30; Rocky Mountain district (Dr. Edgar A. Mearns, superintendent), 14; Manitoba (Prof. W. W. Cooke, superintendent), 10; British Columbia (John Fannin, superintendent), 5; North-west territories (Ernest E. T. Seton, superintendent), 5; Newfoundland (James P. Howley, superintendent), returns not yet received. Migration-stations now exist in every state and territory in the union, excepting Delaware and Nevada.

The committee was fortunate in obtaining the co-operation of the Department of marine and fisheries of Canada, and of the Lighthouse board of the United States. By this means it secured the free distribution of upwards of twelve hundred sets of schedules and circulars to the keepers of lighthouses, lightships, and beacons, in the United States and British North America.

The returns thus far received from observers were exceedingly voluminous and of great value; they were so extensive, indeed, that it was utterly impossible for the committee to elaborate them without considerable pecuniary aid.

In order to show the union the character and extent of the labors of the committee, the chairman had requested the superintendents of all districts east of the Rocky Mountains to prepare reports upon five common, well-known, and widely distributed birds, — the robin, catbird, Baltimore oriole, purple martin, and nighthawk; and these reports were presented for examination.

The chairman called attention to the action of the International ornithologists' congress held in Vienna last April, stating that he had been instructed (in common with the delegates from other countries) to represent the cause of the committee to the national government, begging it "to further to the utmost the organizing of migration-stations," and "to appropriate a sufficient sum for the support of these stations and for the publication of annual reports of the observations made." The council was instructed to memorialize the U. S. congress, and the parliament of Canada, in behalf of the work of the committee on bird-migration.

The report of the committee on the eligibility or ineligibility of the European house-sparrow in America was presented by Dr. J. B. Holder. Dr. Holder said that a circular of inquiry had been printed, and about a thousand copies circulated in Canada and the United States. Particular pains had been taken to secure evidence from those who advocated the cause of the sparrow. A large number of returns had been received, and the evidence for and against the naturalized exotic had been carefully sifted and summarized. The result overwhelmingly demonstrated that the sum of its injurious qualities far exceeds and cancels the sum of its beneficial qualities: in other words, it was the verdict of the committee that the European house-sparrow is not an eligible bird in North America. The union sustained the decision of the committee.

The report of the committee on faunal areas was presented by Mr. J. A. Allen. Mr. Allen said, that, for the purposes of the committee, North America had been divided into several districts, each of which had been placed in charge of a member of the committee, as follows: arctic and British America and the northern tier of states bordering the Great Lakes, from New York to Minnesota inclusive, were being worked by Dr. C. Hart Merriam; Canada south of the St. Lawrence, and New England, by Mr. Arthur P. Chadbourne; the eastern and middle states from New Jersey to Florida, and west to the Mississippi River, by Dr. A. K. Fisher; the Rocky Mountain region, by Dr. Edgar A. Mearns; and the Pacific region, by Mr. L. Belding. It was the plan of the committee to collate and tabulate the required data from all published sources, to avail itself in like manner of the material contained in the returns of the observers of bird-migration, to illustrate the facts thus obtained by colored maps showing the summer and winter range of each species, and to generalize the final results and place the same before the union, accompanied by colored charts, showing, with as much precision as possible, the exact limits of the several faunal areas in North America.

Dr. P. L. Selater said he was glad to know that North America, which he knew as a nearctic region, was being worked in so thorough a manner by so competent a committee, and that the results obtained could not fail to be of great interest and value.

The matter of the wholesale slaughter of our native birds for millinery and other purposes was brought forcibly before the union by Mr. Brewster, and a committee was appointed for the protection of North-American birds and their eggs against wanton and indiscriminate destruction.

Dr. Leonhard Stejneger exhibited a stuffed specimen of a willow grouse from Newfoundland, which he regarded as a new geographical race, differing from the continental form chiefly in the possession of more or less black upon its primaries. Mr. Brewster said that he had recently examined nearly one hundred and fifty specimens of ptarmigan from Newfoundland, and had observed the peculiarities pointed out, but did not consider them constant. He was inclined to regard the characters mentioned as seasonal, and possibly to some extent individual. Dr. Stejneger replied that this coloration of the wing-feathers could not possibly be seasonal, as they (the primaries) were moulted but once a year. Dr. Merriam stated, that, during a recent visit to Newfoundland, he had examined a very large number of willow grouse in the flesh, and was still engaged in investigating the change of color in this species. His studies led him to disagree with Dr. Stejneger's last statement. Dr. Merriam was convinced that the change in color in individual feathers did take place both independent of and coincident with the moult. Mr. D. G. Elliot agreed with Dr. Merriam in considering the change of color of individual feathers an established fact. An animated discussion followed, and was participated in by many members.

In response to a call from the president, Dr. P. L. Selater said he hoped the members of the union would excuse him if he offended the feelings of any one by the remarks he was about to make. It had grieved him much to find in this country three large and valuable collections of birds which were not under the care of paid, working ornithologists. One of these is in Boston, one in New York, and the third in Philadelphia. Each contains what all ornithologists admit to be most valuable typical specimens. A grave responsibility rests upon the possessors of types of species, and the loss or injury of such specimens is a great and irreparable loss to science. The collection of the Boston society of natural history (known as the LaFrenaye collection) has been much damaged by neglect; and the entire collection ought now to be catalogued, and so arranged as to render any particular specimen readily accessible. In the American museum of natural history in New York are the types of the celebrated Maximilian collection, and many other specimens of exceeding great value. A large number of these have never been properly identified, and some of them are missing and have doubtless been destroyed by insect pests. The value of others has been lost through neglect, by the displacement of labels, and by the omission of

proper measures for their preservation. The same remarks would, in a general way, apply to the collections of the Philadelphia academy of natural science. It is sad to find no paid ornithologists in charge of these exceedingly valuable collections, and he begged to suggest that the union could undertake no worthier task than to impress upon the proper authorities the urgent necessity of immediate action in this matter.

The officers of the union were re-elected as follows: president, J. A. Allen, Cambridge; vice-presidents, Dr. Elliott Coues and Robert Ridgway, Washington; secretary and treasurer, Dr. C. Hart Merriam, Locust Grove, New York.

THE MERIDIAN CONFERENCE.

THE International conference for fixing upon a meridian to be employed as a common zero of longitude met at Washington, Oct. 1, in the diplomatic hall of the State department. Forty delegates were present from twenty-five nations. Of these, sixteen were represented, wholly or in part, by members of the diplomatic or consular service; and, as the State department took charge of the affair, the proceedings have been surrounded with much of the secrecy of that office. As a consequence, the questions involved have been very little discussed from the stand-point of scientific or commercial convenience, but the time has been mostly taken up with political diplomacy and sentiment.

The representatives of this country were Rear-Admiral C. R. P. Rodgers, Messrs. L. M. Rutherford and W. F. Allen, Commander W. T. Sampson, and Professor Cleveland Abbe; and, at the first meeting of the conference, Admiral Rodgers was elected president. In his opening address he referred to the wide extent of this country in longitude, but said there was no desire to urge the choice of a prime meridian within its borders. The rest of the session was occupied in discussing proposed methods of conducting the conference, etc.

At the next meeting, on Oct. 2, Lieut.-Gen. Strachey of Great Britain, Mr. Janssen (director of the observatory at Meudon, France), and Dr. Cruls (director of the Rio Janeiro observatory) were elected secretaries.

Commander Sampson then introduced a resolution to invite the superintendents of the *American ephemeris* and of the Coast and geodetic surveys (Professor Newcomb and Dr. Hilgard), Professor A. Hall, Dr. Valentiner (director of the Karlsruhe observatory), and Sir William Thomson, to attend the meetings. A long discussion arose as to whether these persons were to take part in the proceedings, the French delegates opposing any such proposition. The resolution was finally passed as it stood; and Commander Sampson then introduced another, that the gentlemen who had just been invited to attend the meetings of the conference be permitted to take part in the discussion of all scientific questions. The

French delegates again strongly objected to allowing any private individuals, however eminent, who were not authorized by their respective governments, to influence the decisions of the conference. After considerable discussion, the motion was lost, eight to thirteen, each nation having one vote.

Gen. Strachey then introduced, as a substitute, that the president be authorized, with the concurrence of the delegates, to request an expression of the opinions of the gentlemen invited to attend the conference on any subject on which their opinion might be likely to be valuable; and this was adopted without debate.

Commander Sampson then introduced a resolution that the meetings of the conference be open to interested visitors. This, after objection on the part of the French delegates, was lost by a vote of seven to fourteen.

Mr. Rutherford, in order to give direction and precision to the work, then submitted a resolution that the conference propose to the governments represented the adoption, as a standard meridian, of that of Greenwich, passing through the centre of the transit instrument at the observatory of Greenwich.

The two French delegates made extended remarks opposing such a direct resolution, stating that this conference had no authority definitely to adopt any meridian; that it should not be influenced by the decisions of the geodetic conference last year at Rome, since that was purely a meeting of scientific men on a technical matter, while this conference was more international in its character, and should examine the thing from a political stand-point, Mr. Janssen even going so far as to express the opinion that it should confine its deliberations to the question as to whether a common zero meridian were desirable.

Gen. Strachey said we could not ignore the work of the geodetic conference at Rome; that, composed of some of the most eminent scientific men of all countries, who had fully discussed all these questions, its decisions must carry weight; that while this conference had no authority to enforce its decisions, yet it should make them as complete and definite as possible.

Mr. Rutherford said, that a discussion as to whether it were advisable to adopt a common zero meridian or not was a waste of time; that it was taken for granted by our government in issuing the invitations, and by the others in accepting them, but, out of deference to the wishes of the French delegates, he withdrew the resolution temporarily. Another was then offered by Commander Sampson, stating the desirability of adopting a universal meridian, and it was unanimously agreed to. Mr. Rutherford then renewed his original resolution for the adoption of the Greenwich meridian, and Mr. Janssen reiterated his objections to it.

A discussion followed as to the powers of the conference, and the intentions of this government in calling it. Mr. Rutherford referred to the language of the secretary of state in the invitations, saying that each government was invited "with a view to learning whether its appreciation of the benefits to accrue